



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,813	06/27/2006	Toshiaki Kawanishi	930055-2045	4947

7590 01/03/2011
Ronald R. Santucci
Frommer Lawrence & Haug
745 Fifth Avenue
New York, NY 10151

EXAMINER

SAKELARIS, SALLY A

ART UNIT	PAPER NUMBER
----------	--------------

1773

MAIL DATE	DELIVERY MODE
-----------	---------------

01/03/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,813	Applicant(s) KAWANISHI ET AL.	
	Examiner SALLY A. SAKELARIS	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8, 10, and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1773

DETAILED ACTION

Response to Amendment

Claims 1-7 have been withdrawn from consideration. Claims 9 and 11-14 have been cancelled. Claims 8, 10, and 15-19 remain pending claim 20 has been newly added.

Claim Interpretation

As to the pending claims, 8, 10, and 15-20 below, which contain intended use terms, the Examiner will interpret these claims in light of the structural elements that are disclosed and not for their intended use as stated after the term "for." The term, "for," is an intended use term. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Exparte Masham*, 2 USPQ2d 1647 (1987). The Examiner has applied references, which are capable of meeting these functions. A structure, which is capable of providing the intended use, is considered to meet the limitation of intended use recited in a claim to a device or an apparatus.

In particular reference to applicant's recitations of processing sections, it should be noted that computers or processors must be recited as being "configured to" or "programmed to" perform a particular method step should applicant desire full patentable weight attributed to them. As they stand, a general teaching of a computer will be interpreted as being capable of performing these analytic steps.

Claim Rejections - 35 USC § 103

Art Unit: 1773

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 8, 10, 15, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanma et al. ("Capacitance-Type Alcohol Sensor", The Society of Automotive Engineers of Japan, Annual Congress Preliminary Printing Collection 936, 1993-10, pp. 257-260 with English translation) in view of Fleischer et al. (US 5635628).

Art Unit: 1773

With regard to claim 8, Sanma et al. teach an alcohol concentration sensor of an electrostatic capacitance type for measuring an alcohol concentration in fuel for internal combustion engine mixed with alcohol in Figures 3 and in Figure 10 as can be seen below:

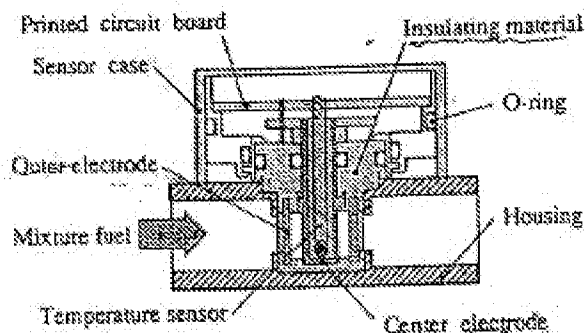


Fig.10 Structure of alcohol sensor

Sanma et al. teach that the sensor comprises: an insulating substrate and a pair of electrodes (Center and Outer) arranged on a surface of the insulating substrate capable of producing an electrostatic capacitance, wherein the insulating substrate is made of a material showing a low dielectric constant (i.e., discussion on pages 3 and 9 of their translation) in their taught insulating resin mold, substrate. Sanma et al. further teach a pair of lead out electrodes (i.e., leading out from the center and outer electrodes) that are exposed by the resin mold and configured such that they are capable of being brought into contact with the fuel mixed with alcohol for an internal combustion engine (see fuel mixture proximity in Figure 10 above).

With regard to claim 8, Sanma does not teach that the substrate has a thickness between 200 and 1000um, has a dielectric constant not higher than 5, that the pair of electrodes is at least partly covered by an insulated protective film showing a specific dielectric constant not higher than 5 or having a thickness between 0.4um and 1um.

Art Unit: 1773

With regard to claim 8, Fleischer et al. teach a method and sensor for detecting methane within a gas mixture. Fleischer et al. teach an insulating substrate made of a material with a dielectric constant not higher than 5 in their teaching of silicon, electrically insulating substrate that is about 0.5um thick.

Fleischer does not teach a substrate that has a thickness between 200 and 1000um.

Since the instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art to change the thickness of the substrate, since such a modification would have involved a mere **change in the size (or dimension) of a component.** A change in size (dimension) is generally recognized as being within the level of ordinary skill in the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device, and the device having the claimed dimensions would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device, Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). It is well known in the art that the value of the electronic capacitor is dependent upon the area of the plates, the distance between them and the dielectric constant of the material or dielectric between them. The greater the area of the plates, the closer they are together and the greater the value of the dielectric constant the greater the value of capacitance. The thickness of the substrate in addition to these various design parameters are taken into consideration when determining the most optimal construction for the device.

With regard to claims 8 and 20, Fleischer teach that the pair of electrodes are at least partly covered by an insulated protective film consisting of SiO₂ (Col. 3 lines 7-20 and lines 33-

Art Unit: 1773

40), which is well known in the art to have a dielectric constant not higher than 5 and is taught to have a thickness of about 1 to 50um (Col. 3 line 27).

It would have been obvious to a person of skill in the art at the time the invention was made to have used the protecting film of SiO₂ of Fleischer within the device of Sanma as SiO₂ is well known to have a small leakage current, high breakdown voltage, and high reliability.

With regard to claims 10 and 19, Sanma do not teach that their electrodes are between 0.01 and 0.8 μm or are of the thin film variety.

Fleischer et al. teach that their electrodes can come in various sizes dependent on the optimization of the apparatus of a whole but specifically asserted that they can comprise thicknesses from about 0.1 μm to about 10um (Col. 2 lines 63-65).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to have used the thin film electrodes at the thickness taught by Fleischer within the sensor of Sanma et al. as the introduction of thin film electrodes confers benefits of lower volume, weight, cost, and higher application temperature to the apparatus.

With regard to claim 15, Sanma et al. teach an oscillation circuit (Pg. 4 of translation) including a pair of electrodes and a processing section (i.e., comparator) capable of computationally determining the alcohol concentration according to an oscillation frequency of the oscillation circuit via the schematic shown in Figure 1 and via comparator (Figure 3 block diagram circuit and graphs 2, 3, 5-9).

With regard to claim 18, Sanma et al. teach that the apparatus determines the concentration of alcohols within gasoline (Abstract).

Art Unit: 1773

2. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanma et al. ("Capacitance-Type Alcohol Sensor", The Society of Automotive Engineers of Japan, Annual Congress Preliminary Printing Collection 936, 1993-10, pp. 257-260 with English translation) in view of Fleischer et al. (US 5635628) and in further view of Stanbro et al. (US 4728882).

With regard to claims 16 and 17, and in view of the claim interpretation section above, Sanma et al. teach a processing station in the form of a comparator and various different computational outputs that are shown in Figures 1-9.

Neither Sanma or Fleischer teach the processor as claimed.

With regard to claim 16, Stanbro et al. teach a processing section that computationally determines the alcohol concentration using a calibration curve in their microprocessor system of Figure 9. The output frequency of each oscillator (62,64) is fed to an associated counter (66,68) which sends the frequency count in digital form via bus 70 to microprocessor 72. A look up table containing data similar to that shown in Fig.2, is stored in the microcomputer and a determination of the concentration of the analyte in the fluid medium is made (Col. 9 lines 40-59).

With regard to claim 17, Stanbro et al. teach the look up table within the microprocessor includes a relationship that corresponds to the alcohol concentration and the oscillation circuit, namely the determination of the concentration of the analyte in the fluid medium is made (Col. 9 line 50-55) within the range of 0-5% accuracy.

It would have been obvious at the time the invention was made to have used the microprocessor system of Stanbro et al. in the device of Sanma in view of Fleischer as computers

Art Unit: 1773

are well known in the art and programming them to perform the functions and analysis taught by Sanma would provide a cost and time savings via the incorporation of automating steps such as are claimed.

Response to Arguments

Applicant's arguments with respect to claims 8, 10, and 15-19 were convincing and a new rejection has therefore been provided above. As a result the previous arguments are now considered moot in view of the new ground(s) of rejection in view of Sanma et al. in view of Fleischer et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SALLY A. SAKELARIS whose telephone number is (571)272-6297. The examiner can normally be reached on Monday-Friday 8-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 5712721267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/584,813

Page 9

Art Unit: 1773

/Sally A Sakelaris/

Examiner, Art Unit 1773

12/30/2010